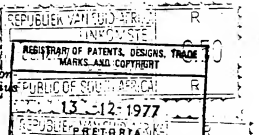
SPOOR AND FISHER
PATENTS FORM No. 1 and 1A

REPUBLIC OF SOUTH AFRICA
The Patents Act 1952 as Amended

# APPLICATION FOR A PATENT

*NOTE: This is a composite form for use in a convention or a non-convention filing. In a non-convention case the lines marked thus * must be deleted.*




| Official Filing Date and Application No. |
|---|
| 77/7411 |

Full Name(s) of Applicant(s) UNILEVER LIMITED

Address(es) of Applicant(s) Unilever House, Blackfriars, London EC4, England

Full Name(s) of Inventor(s) BRIAN JAMES BREWSTER, JOHN ALBAN HOWARD, RICHARD MALLOWS

I/We do hereby declare that ~~I~~/we are in possession of an invention the title of which is

TAMPON APPLICATORS

~~I~~/We are the assignee(s) ~~of~~ of the inventor(s).

* Application(s) for protection for the invention(s) has/have been made in the following country/*countries and on the following official date(s) i.e.:—

| | | | | | |
|---|---|---|---|---|---|
| 1. | (Country) Great Britain | (Date) | 14 December 1976 | (Number) | 52093/76 |
| 2. | (Country) | (Date) | | (Number) | |
| 3. | (Country) | (Date) | | (Number) | |

* The said application or each of the said applications was the first application in a convention *country in respect of the relevant invention by ~~me~~/us or by any person from whom ~~I~~/we derive title.

To the best of ~~my~~/our knowledge and belief there is no lawful ground of objection to the grant of a patent to ~~me~~/us on this application.

* ~~I~~/We pray that a patent be granted to ~~me~~/us for the invention in priority over other applicants *and that such patent shall have the official date of the first application in a convention country i.e. 14th December, 1976.

~~I~~/We enclose herewith the ~~provisional~~/complete specification.

~~I~~/We hereby appoint the partners and qualified staff of the firm of Messrs. Spoor and Fisher jointly and severally with power of substitution and revocation to act for ~~me~~/us in all matters relating to this application and any Letters Patent granted thereon.

Name and Address for service in the Republic — Messrs. Spoor and Fisher, PO Box 454, Pretoria

| TABLE OF CLASSIFICATION | |
|---|---|
| CLASS | SUB-CLASS |
| | |

DATED THIS 4th DAY OF November , 19 77

SPOOR & FISHER
Masada Building
Paul Kruger Street
P.O. Box 454
PRETORIA

UNILEVER LIMITED

(Assistant Secretary)

Signature of Applicant/s and Capacity.

FIRST RECEIVED in SOUTH AFRICA this 5th day of December 1977 by me RT

Patents Form N . 3


REPUBLIC OF SOUTH AFRICA
THE PATENTS ACT 1952 AS AMENDED

# COMPLETE SPECIFICATION

OFFICIAL APPLICATION No.: 77/7411 FILING DATE:

NAME AND ADDRESS OF APPLICANT~~(S)~~:
UNILEVER LIMITED,
Unilever House,
Blackfriars,
London EC4,
ENGLAND.

TITLE OF INVENTION:
"TAMPON APPLICATORS"

~~I~~/WE DO HEREBY DECLARE THIS INVENTION, THE MANNER IN WHICH AND THE METHOD BY WHICH IT IS TO BE PERFORMED, TO BE PARTICULARLY DESCRIBED AND ASCERTAINED IN AND BY THE FOLLOWING STATEMENT:

The present invention relates to tampon applicators preferably of water dispersible material, for example paperboard, for positioning catamenial tampons.

Tampon applicators are wellknown where an outer tubular section and an inner tubular section telescope together with a sliding fit. The tampon is carried within the outer tubular section and the inner tubular section serves as a pusher to eject the tampon.

In previous designs, the sliding fit relationship between the two sections has been maintained by pinprick deformations in the outer section, which are not sufficiently firm to maintain the correct relationship of the two parts, or by circumferentially extending ridges which are difficult to make and create limitations in regard to disposal, since in the inwardly telescoped position the circumferential ridges tend to provide a seal against fluid penetration to the inner surface of the applicator.

The present invention provides a tampon applicator, preferably of a water dispersible material, comprising an outer tubular section, and an inner tubular section which telescopes with a sliding fit within the outer section, the outer section having inwardly or outwardly directed longitudinal ribs which define fingergrip sections between adjacent ribs and form internal longitudinal channels with respect to the inner sectior to allow longitudinal fluid penetration during disposal.

With this arrangement the two sections can very closely telescope, i.e. with a resilient contacting fit over a

significant area of the two parts which prevents air locks between telescoped sections and allows fluid to flow between the two parts during disposal. Thus, during disposal in a water closet, at which point the applicator will be in its telescopically closed position, liquid can reach all parts of the applicator rapidly to help disposal.

The longitudinal ribs also have the advantage of defining convenient finger grip areas, and of giving additional strength to the article.

Preferably said outer section has the ribs only at an end zone, and the inner tubular section is externally belled at its inner end along a zone which is inward of the ribs, whereby ensuring the two tubular sections hold together.

The most convenient material for the article is, as previously indicated, paperboard, but water dispersible plastics materials such as polyvinyl alcohol, polyethylene oxide may be used. Other plastics materials may be used when dispersal of the telescopic components is not an essential requirement.

The section with longitudinal ribs is easily manufactured for example by a crimping or swaging operation, when paperboard is used, or by moulding or forming when a plastics material is used.

An embodiment of the invention will now be described by way of example with reference to the accompanying diagrammatic drawings in which

Figure 1 shows a perspective view of an outer tubular section with three longitudinal ribs;

Figure 2 shows a perspective view of an outer tubular section with four longitudinal ribs;

Figure 3 shows an outer tubular section with four longitudinal ribs and further shaping;

Figure 4 is a centrally sectioned side elevation of a complete assembled tampon and applicator;

Figure 5 shows an enlarged sectional view on the lines V-V of Figure 4;

Figure 6 shows a part broken away sectional view of a second assembled applicator; and

Figure 7 shows a view of the second applicator section on the lines VII-VII of Figure 6.

Figures 1, 2 and 3 each show a perspective view of an outer tubular section which is to form an applicator together with an inner section with which it will be in telescopic fit. Figure 4 shows an outer section 1 such as in Figures 1, 2 or 3, closely fitting onto an inner section 2 in the telescopically extended position. A tampon 3 and drawstring 4 are incorporated within the two parts of this applicator. The outer section has longitudinal ribs 5 (in Figure 1 there are three, in Figure 2 there are four and in Figure 3 the ribs are divergent at their ends). Referring to Figure 5 these longitudinal ribs define together with the wall of the inner section 2 a longitudinal gap 6. Each of these gaps

allows fluid to flow between the telescoped parts into the interior sections of the applicator during disposal in a water closet or chemical closet, thereby allowing all the paperboard material to become wetted rapidly so as to promote breakup. Moreover the absence of air within the parts reduces their buoyancy, and aids flushing in a water closet.

The outer section 1 has its end shaped with the longitudinal ridges 5 by a crimping or swaging or injection moulding operation. Thus, three or four radially located jaws will come inwards to press the areas between the longitudinal ribs 5 against a suitably shaped inner core temporarily inserted inside the section 1.

As well as providing the longitudinal channels 6, the shaped ends result in suitable finger grip sections 7. Moreover, on the interior of these finger grip sections 7 there will be a close contacting fit with the exterior of the inner section 2 over a substantial area. This provides a greater contact area than with most previously known applicators and in consequence results in a more rigid construction. The presence of the longitudinal ribs, also helps to ensure an exact sprung tight fit, since any slight variations in dimension will be taken up by flexure relative to the longitudinal ribs.

Referring to Figure 4, it will be seen that the inner end of the inner section 2 is bell mouthed outwards within the outer section 1, so as to ensure that it cannot fall

out of the outer section prior to being used. Also, the opposite end of the outer section 1 is slightly shaped inwards, to ensure that the tampon 3 is positively retained, and also to improve the insertion comfort (as compared with conventional tampons with sharp edges).

An additional feature may be optionally introduced into the inner section 2. This is to slightly bell the inner end of this section 2 inwards or to provide an inward indentation. This prevents any risk of jamming as between the tampon and the inserter.

A second embodiment is shown in Figures 6 and 7. In this case the outer section 2 has a crimped end basically similar to that shown in Figure 3, but with a slightly deeper degree of inward crimping, and with the end of the outer section at a zone 8 being belled outwards. Thus the finger sections 7 have a more concave shape, i.e. which more closely matches the shape of the finger. A further feature of this design is that the inner section 2 is also slightly crimped inwards to give a squared off shape (see Figure 7) which results in more positive location of the assembly in the telescopically extended position; and it also helps automatic machine construction of the tampon applicator as the crimping can be done after assembly of the two parts, in a single operation. Again, jamming risk is reduced by this measure.

In the described examples the ribs extend outwards of the outer section 1. In an alternative form of the invention the ribs extend inwards, in which case they provide the bearing surface for the inner section and the zones between them form channels for liquid flow.

Having now in detail described and ascertained my/our said invention and the manner in which the same is to be performed, I/We declare that what I/we claim is:

1. A tampon applicator comprising an outer tubular section and an inner tubular section which telescopes with a sliding fit within the outer section, the outer section having longitudinal ribs which define finger grip sections between adjacent ribs and form internal longitudinal channels with respect to the inner section to allow longitudinal fluid penetration during disposal.

2. A tampon applicator according to Claim 1 in which said outer tubular section has the ribs only at an end zone, and the inner tubular section is externally belled at its inner end along a zone which is inward of the ribs, whereby ensuring the two tubular sections hold together.

3. A tampon applicator according to Claim 1 or Claim 2 in which said tubular sections are of water dispersible paperboard material and the ribs are crimped.

4. A tampon applicator according to Claim 1 or Claim 2 in which said tubular sections are of water dispersible plastics material and the ribs are moulded.

5. A tampon applicator substantially as herein described with reference to the accompanying diagrammatic drawings.

DATED THIS 13th DAY OF DECEMBER 1977

SPOOR AND FISHER
Patent Attorneys for the Applicant.

UNILEVER LIMITED
Complete Specification

1 SHEET

Fig. 1.

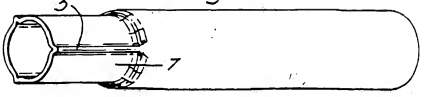



Fig. 2.

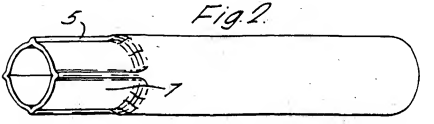



Fig. 3.

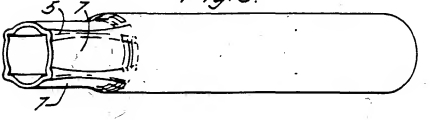



Fig. 4.

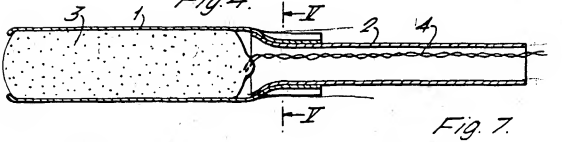



Fig. 5.

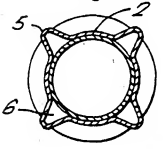



Fig. 7.

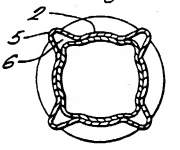



Fig. 6.